Pietro Fiorentini®

Providing ***Today's Knowledge-Based Solutions*** to
the Worldwide Natural Gas Industry…….

# Quality is the key

- Pioneering Company in the field of quality
- Quality Assurance System was introduced in the early eighties & now using Kaizen Manufacturing method.
- Fourth mechanical company in Italy to obtain the ISO 9002 certificate, followed later by certification according to ISO 9001.
- ISO 14001 certified
- ASME, API 6D; API 12K; API 12J; PED certified
- Many local approvals under different local standards



# PIETRO FIORENTINI'S

# FE

# SERIES REGULATOR

# A NEW STYLE OF SERVICE REGULATOR

# CSA-APPROVED & CERTIFIED TESTING LABORATORY & FACTORY


CSA INTERNATIONAL

**Certificate of Qualification**

This is to certify that

Fiorentini Minireg S.p.A
Costruzione Apparecchiature, Per Gas, Via Faustinella 11/13/15,
Desenzano del Garda, Brescia 25015 ITALY

has been qualified by CSA International as a Testing Facility for

WITNESSED MANUFACTURER'S TESTING FOR CERTIFICATION PROGRAM (WMTC)
Based on ISO/IEC 17025:2005

| | |
|---|---|
| Certificate No. | WMTC-021 |
| Issue Date: | July 29, 2008 |
| Expiry Date: | July 28, 2011 |

*Susan McCarthy,*
*Technical Manager, Service Quality*

# FE/FEX

# FE

The FE series of two stage self-driven spring loaded regulators are widely used in both residential and commercial installations using Natural Gas, LPG and other non corrosive gases.

A balanced two stage regulator results in accurate regulation and high operational reliability.

They can be mounted in any position provided they are protected from weather.

They are designed for either direct installation to a gas meter or used in general pipeline work.

# FE/FEX

- Spring Operated
- Low Pressure Outlet
- Normally “Fail Open”
- Sizes: Inlet – ½”, ¾”, 1”
  Outlet - ¾”, 1”, 1¼”, 1½”
- Body Materials
  - Die Cast Zinc/Aluminum
- Connections: FNPT
- Fully Balanced 2 stage regulation design
- Can be mounted in any position
- Inlet and Outlet Test Connections Available

- Maximum Inlet Pressure: 125 psig
- Outlet Pressure: 6” to 7.1 PSIG
- Accuracy Range: +/- 1 to 5% or less
- Lock-up Pressure: +2 to 3.5% of Set Point
- Maximum Capacity: 215 to 3,531 scfh

OPTIONS:

- Integral Slam-Shut Valve
- Very Accurate for fixed factor billing
- Available with:

High gas pressure shut-off
Low gas pressure shut-off
or both

# FEATURES & OPTIONS

> Inlet filter: area (0.775 inch2) 100 µm efficiency.
> Over pressure shut-off device (OPSO) BP 14 -120.5” wc
> Over pressure shut - off setting range:
Wd OPSO BP 12.8 - 2.3” PSI
Wd OPSO TR 2.2 - 6.53 PSI
> Under pressure shut-off device (UPSO). STD value not adjustable.
> Under pressure shut-off setting range:
Wd UPSO BP 2.4 - 32.1” wc
Wd UPSO TR 1.14 - 2.86 PSI
> Excess flow valve.
> Manual reset of safety shutoff device only.
> Internal Relief valve (token).
> Safety shut-off for second stage diaphragm failure.

**UPON REQUEST**

> Anti-reset device.
> Inlet and outlet pressure test point.
> With inlet valve - (without OPSO).
> Without OPSO - (without UPSO).
> Double Diaphragm
> Low temperature version (-40°F + 140°F).

# Optional Painted FE

Standard FE : Phosphate protective Coating

All painted products

PREPARATION : Shot blasting with 800 microns diameter micro sphere steel shot

PRIMER : Phosphate Coating

FINAL COAT : Epoxy polymeric powder paint 356° F final thickness 30-40 micron

COLOR: Grey 9006

**Exceeds the standard ISO 9227 requires 720 hours in NSS, or neutral salt spray. After exposure, experts examine the sample for the presence of oxides and evaluate its corrosion-resistance performance**

# CAPACITY

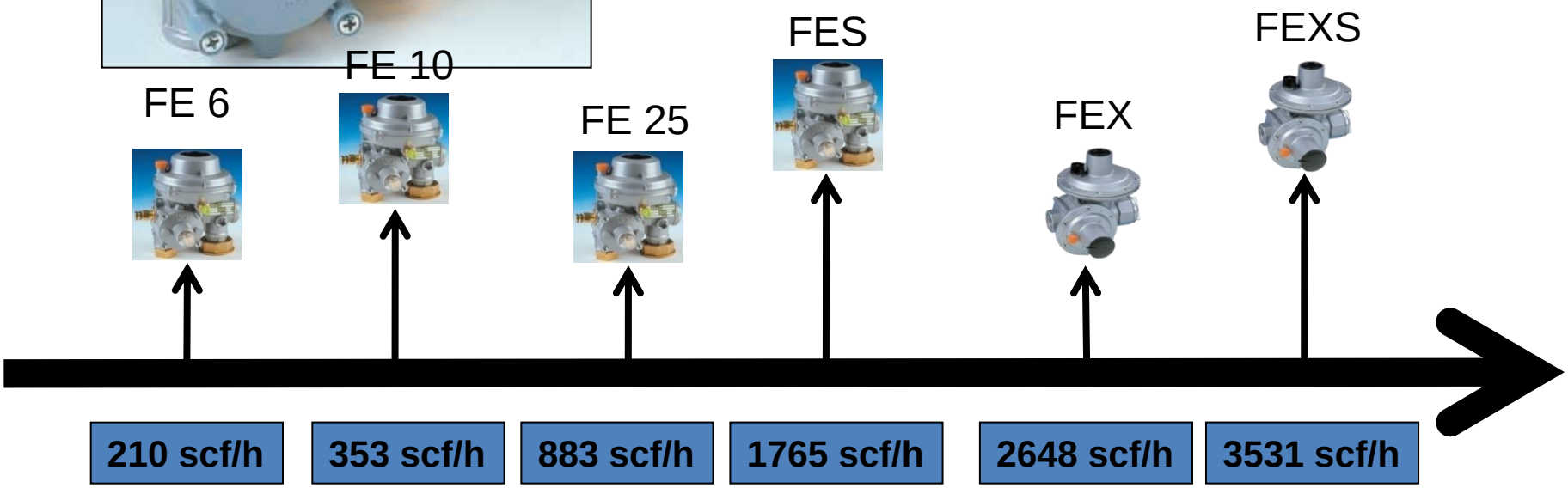
| MODEL | Nominal CAPACITY | REQUIRED MIN. Inlet pressure (Psi) |
|---|---|---|
| **FE6** | 211 cf/h | Pd + 2.2 |
| **FE10** | 353 cf/h | Pd + 3 |
| **FE25** | 882.8 cf/h | Pd + 4.3 |
| **FES** | 1,765 cf/h | Pd + 7.2 |
| **FEXF** | 1,765 cf/h | Pd + 7.5 |
| **FEX** | 2,648 cf/h | Pd + 7.5 |
| **FEXS** | 3,531 cf/h | Pd + 7.5 |

# *Be Flexible!*

**Maximum Inlet Pressure 125 Psi**

**Wide Outlet Pressure Range**

**Wide Flow Capacity Range**



# …To Innovation… *Be Flexible!*

-Two stage

- Balanced

- Multi-Position

- High Accuracy

-Compact

-Excess Flow valve

-Thermic Safety Valve

-Filter

- Full Relief Models

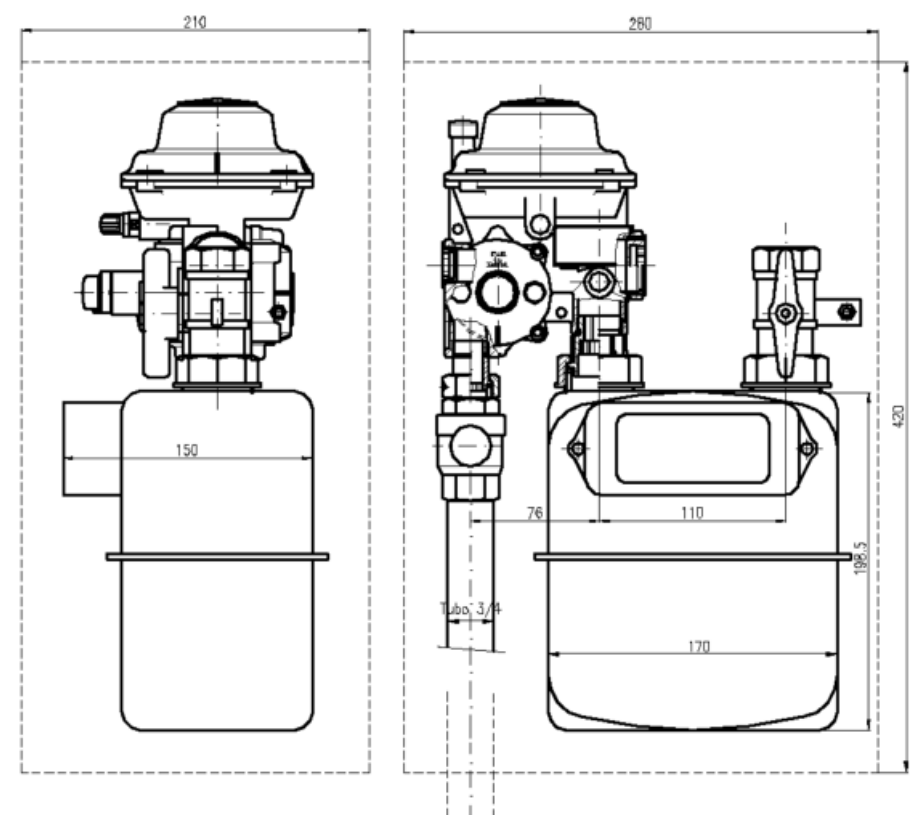
- Anti-tampering

-Mounting Holes

-Inlet & Outlet Test Ports

- Low Temperature

-Underground Install


210
280
150
76
110
420
198,5
Tubo 3/4
170

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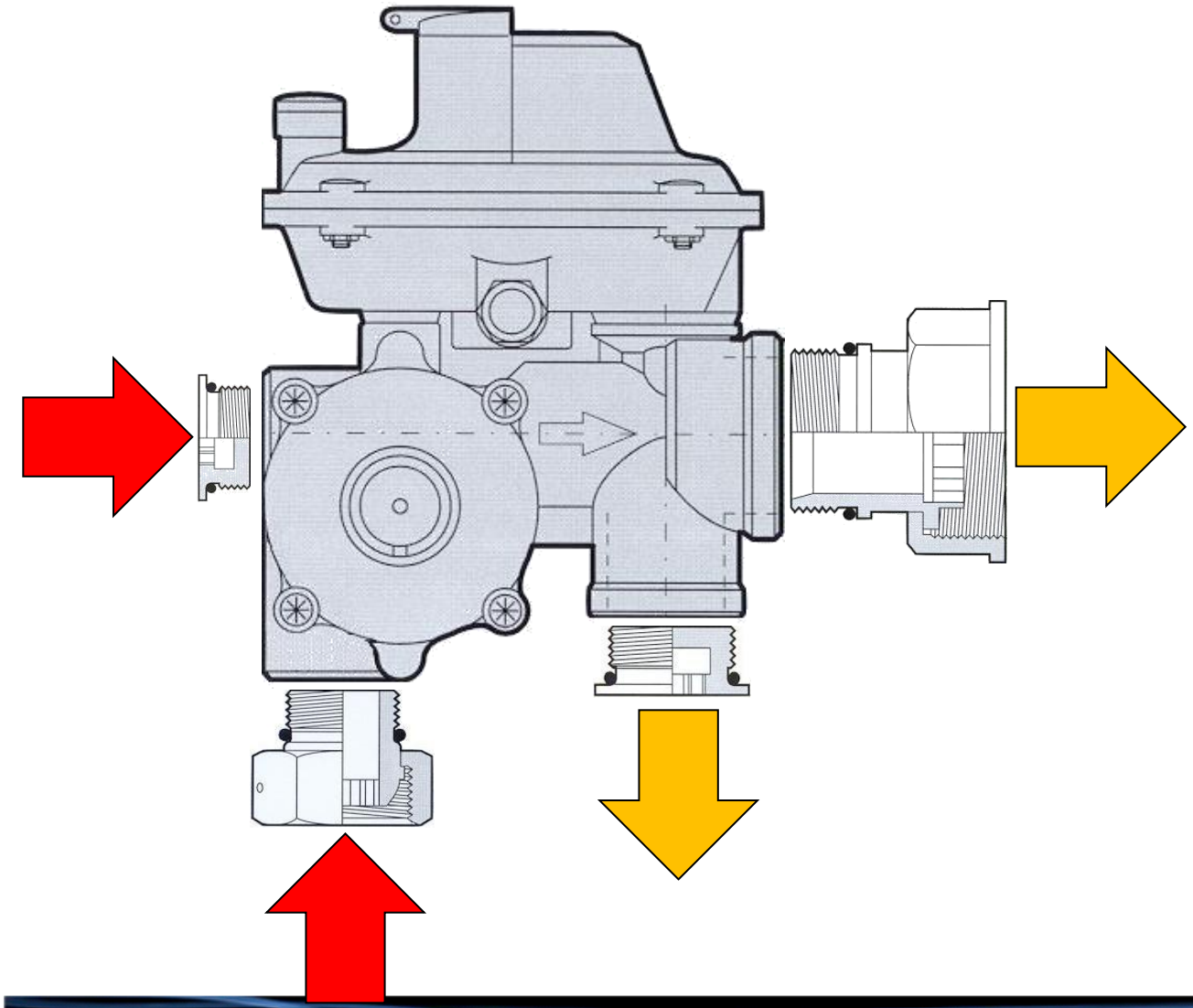
## *Be Flexible!*



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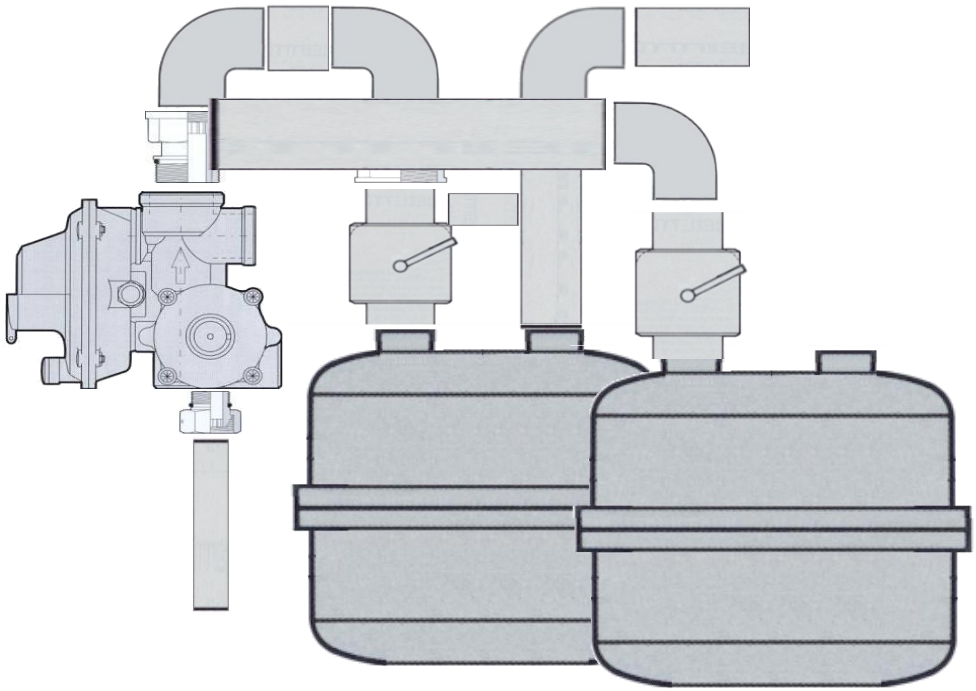
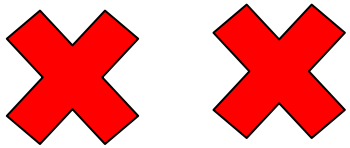
## *Be Flexible!*





# *Be Flexible!*

## *Underound / Underwater Version*

# *Be Flexible!*


Mounting Holes

ssure test point

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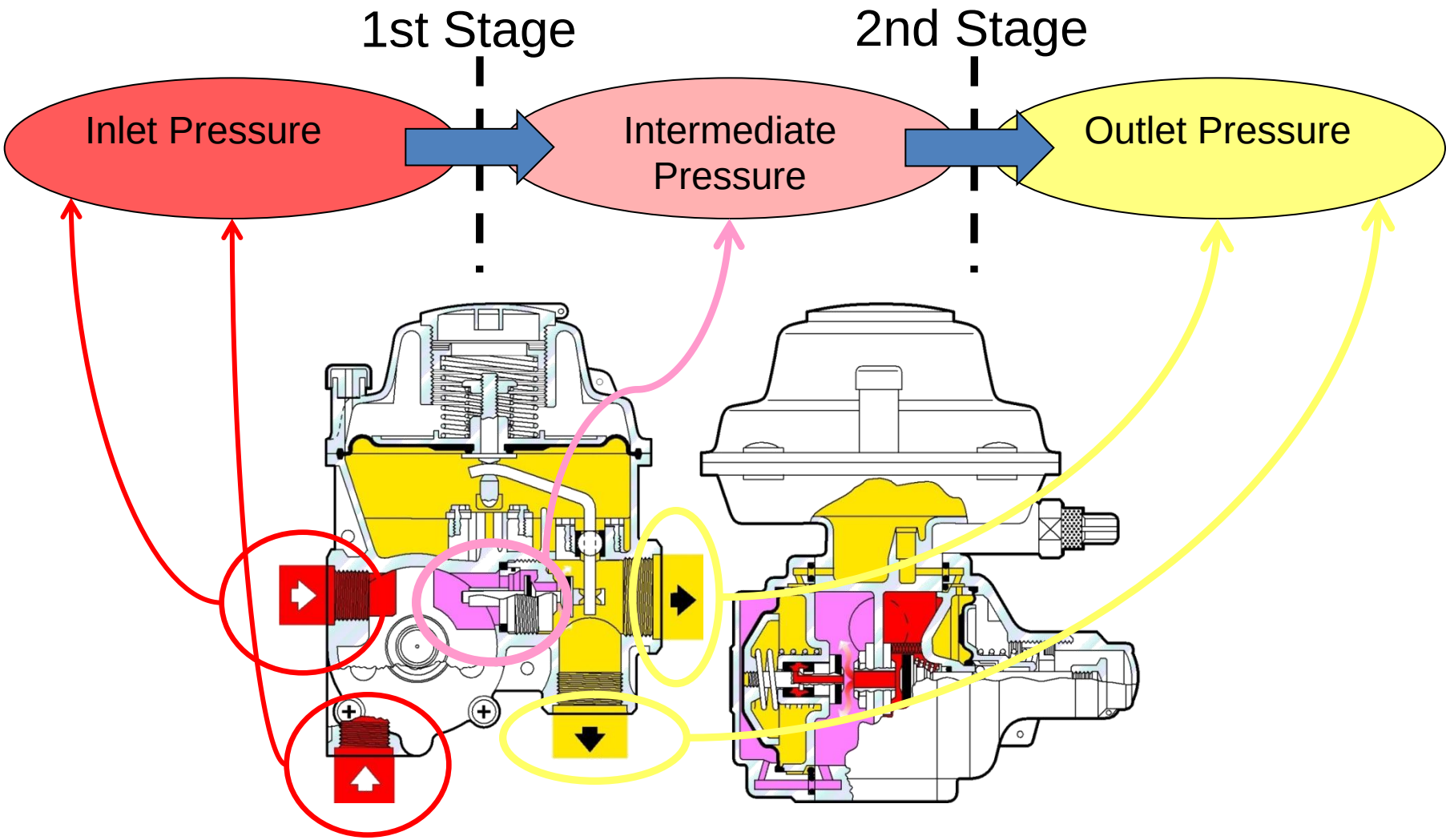
## *Be Accurate!*



# *Be Accurate!*

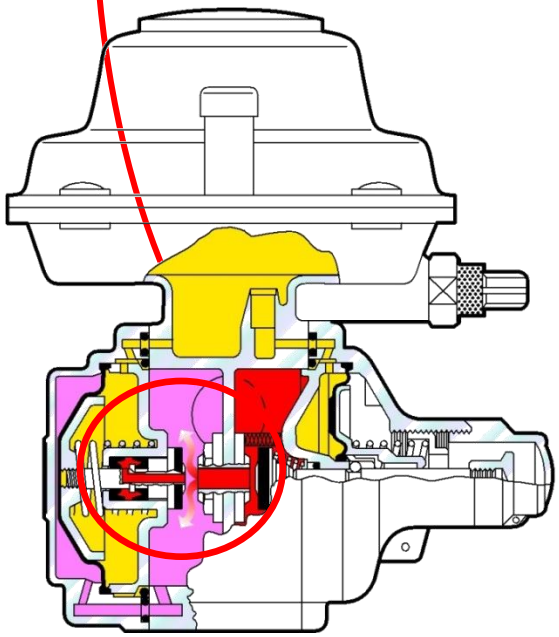
1st Stage

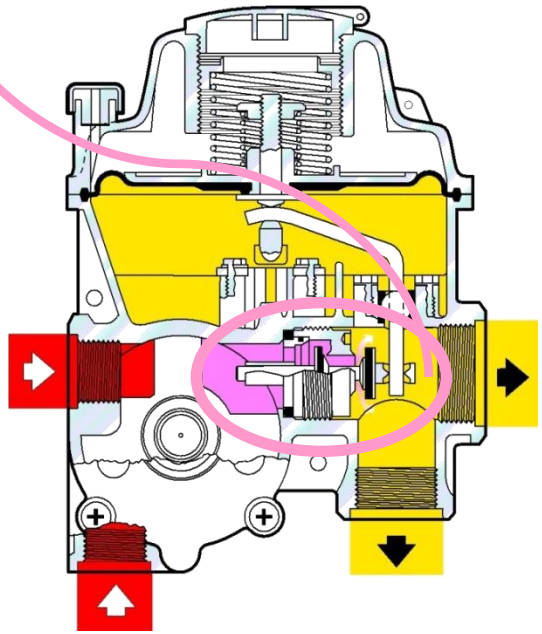
2nd Stage

Inlet Pressure Balanced Valve Design

Balanced Valve Design

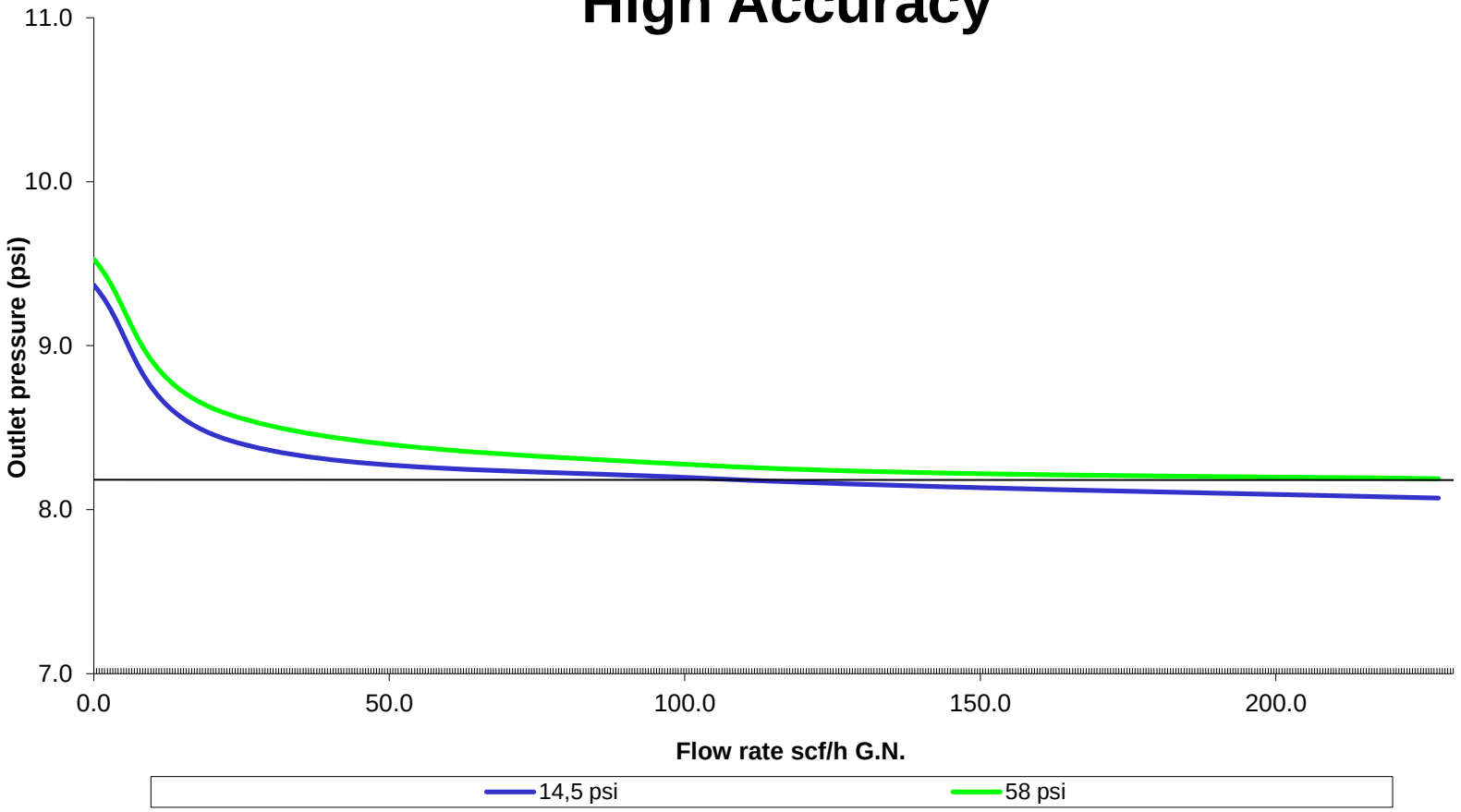
Outlet Pressure Acuracy



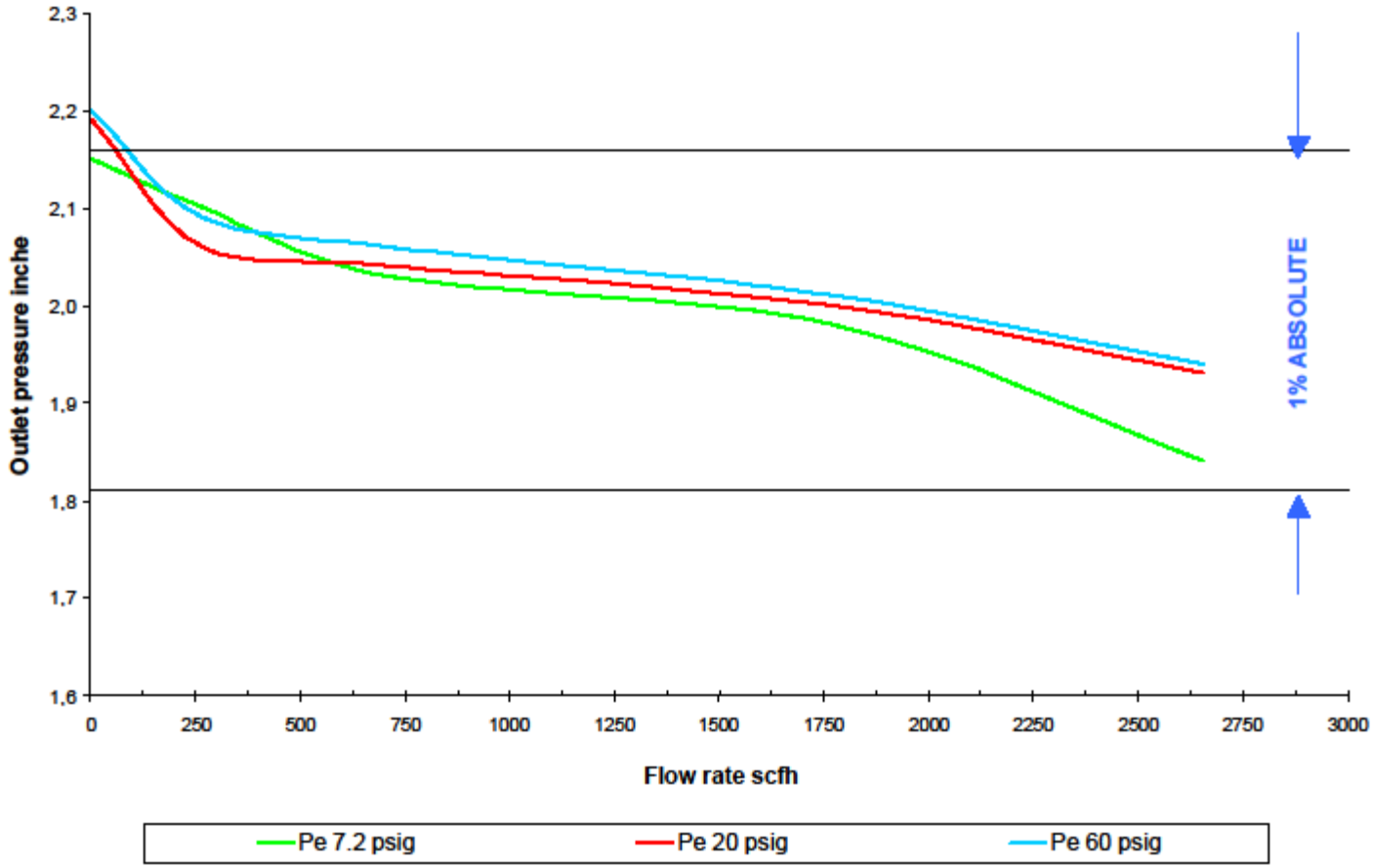


# *Be Accurate!*

## High Accuracy



## REGULATOR FEX1 MP OUTLET PRESSURE 2 PSIG




SAQ 16/06/2004

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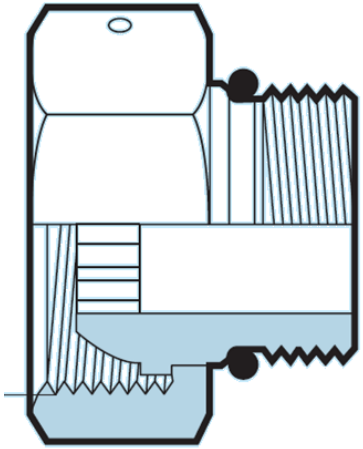
## *Be Safe!*

- Excess flow valve
- Thermic Valve



The temperature rises and the insert melts, blocking the gas flow.

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# *Be Safe!*

-Two stage

- Balanced

-Multi Position

-High accuracy

-Compact

-Excess Flow Valve

-Thermic Safety Valve

-Filter


-Anti-tampering

- Mounting Holes

-Inlet & Outlet Test Ports

- Low Temperature

-Underground Install

- Full Relief

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## *Be Safe!*

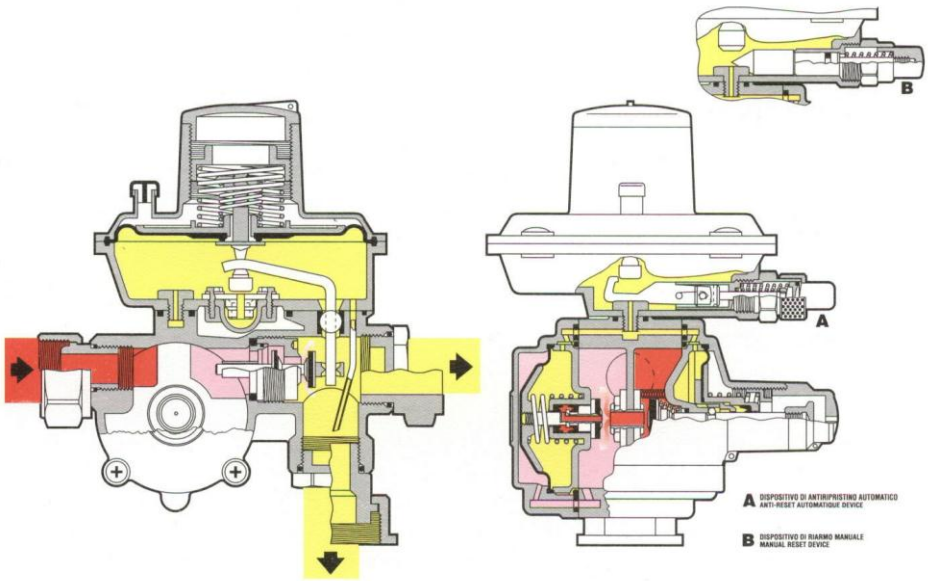
Slam Shut device:
- OPSO
- UPSO
-Manual reset
- Shut off for lack of feeding
- Transparent plug on OPSO

ARMED

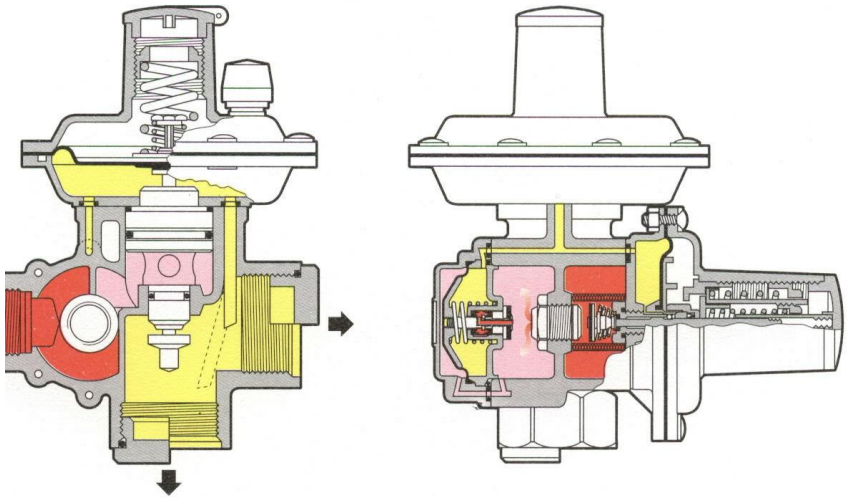
UNARMED

# FE/FEX

FE 6 - 10 - 25

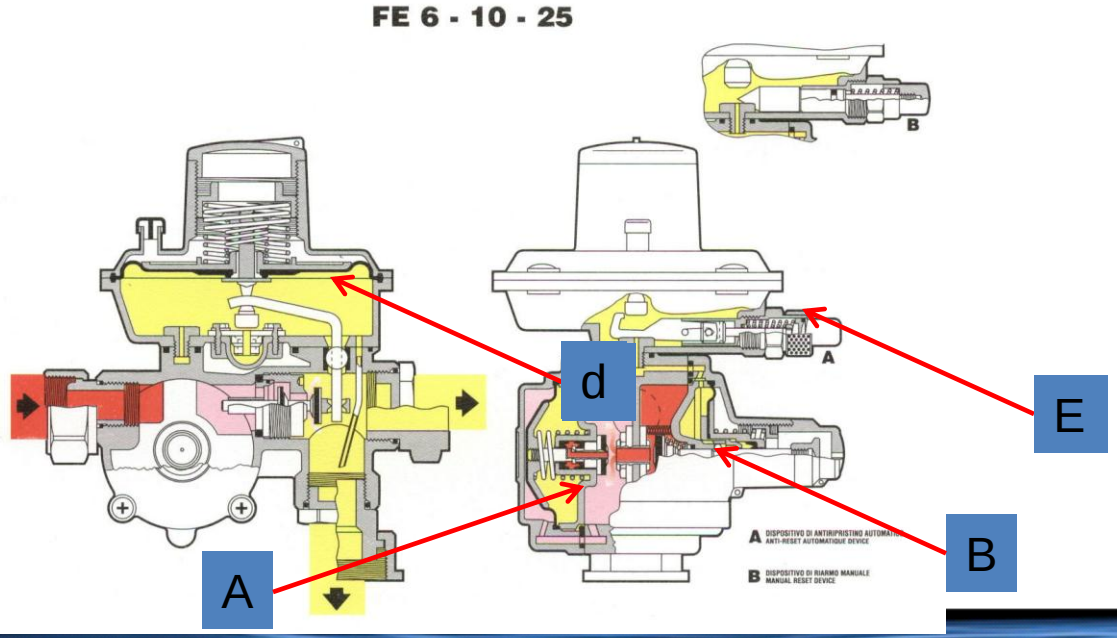



FE 50



# FE Failure Matrix

| | |
|---|---|
| A. Failure of 1st stage diaphragm | Outlet Pressure will increase |
| B. Failure of slam shut diaphragm | Increase in outlet pressure &Slam Shut trips |
| C. Failure of main diaphragm | Safety diaphragm takes over |
| D. Failure of safety diaphragm | Slam shut should trip |
| E. Line breaks downstream | Low pressure cut off engages shuts off |



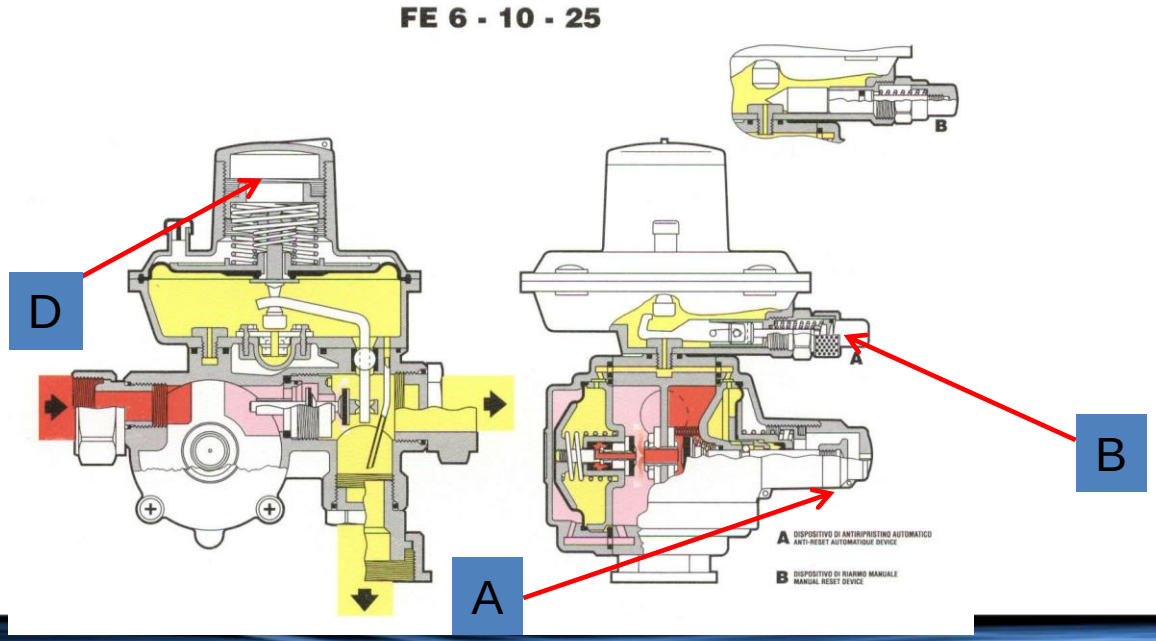
# FE Start Up

A. Turn Gas on

B. Pull out slam shut reset stem

C. Push in low pressure reset button

D. Adjust outlet pressure



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# Questions???

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# Thank You!